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THE
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☞See advertisement on last page.

Poetry.

SONG OF A POOR MAN.

I am a poor man, very poor,
And all alone I go;
I would I might yet once again
Right joyous courage know.

In my beloved parents house
A happy child was I,
But bitter sorrow is my lot
Since in the grave they lie.

I see the rich man's gardens bloom,
His golden harvests nod;
But mine is an unfruitful way
By care and sorrow trod.

Yet dwell I in my voiceless pain,
Amid life's joyous swarm,
And wish each one I meet, good day,
So hearty and so warm.

O thou rich God! Thou leav'st me yet
Not wholly comfortless,
From heaven sweet consolation comes
The whole wide world to bless.

On every little hamlet green
Thy holy house is found;
The organ and the chorus-song
In every ear resound.

The sun and moon, and stars yet smile
Most lovingly on me,
And when the evening bell rings out,
Then talk I Lord with thee.

Each good man in thy halls of joy
Will one day be a guest;
Then shall I come in robes of light,
And seat me at the feast.

DO SOMETHING

Up, up, and be doing!
Let us work while we may;
For ill is pursuing
The idle alway.

Labor is noble—
God-sanctioned is toil,
Be it black at the anvil,
Or brown at the soil.

Scorn not your station,
Be it higher or lower;
Each honest vocation
Has glory in store.

Ply at some calling
No matter what,
If needful and lawful
'Twill sweeten your lot.

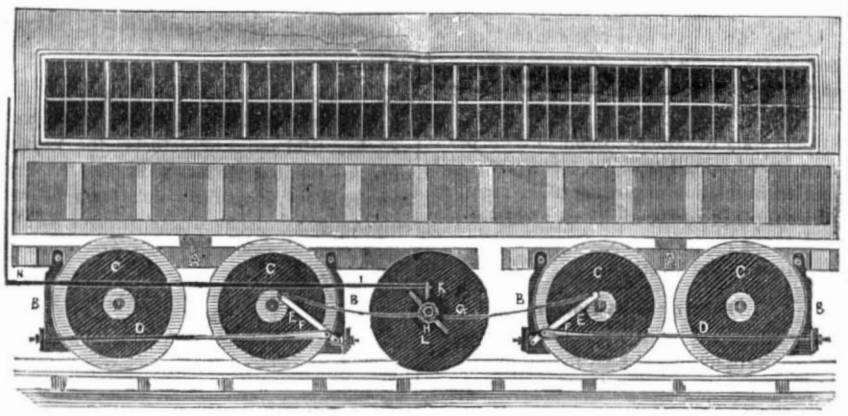
PROGRESS.

Profounder, profounder,
Man's spirit must dive;
To his aye-rolling orbit
No goal will arrive;
The heavens that now draw him
With sweetness untold,
Once found, for new heavens
He spurneth the old.

Among the medical students to whom the London College of Surgeons has lately granted a diploma, is a Hindoo gentleman of the name of Soorjoocomar Goodeve Chuckerbutty.

PRATT AND MORSE'S IMPROVED RAILROAD BRAKE.

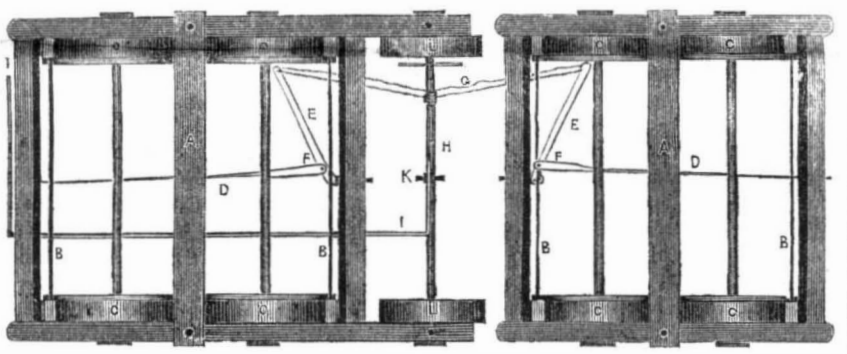
Figure 1.



This is an invention of Messrs. Pratt and Morse, of Webster, Mass. It possesses novelty and is worthy of attention. Its nature consists in applying friction brakes to the faces of the running wheels by means of chains winding round an axle of two sliding wheels, which are thrown out of and in gear by a power lever operated as may be, by either the conducter or engineer.

Figure 1, is a side elevation, partly in section. The same letters indicate like parts on both figures. A A, is the frame. B B B B, are friction brakes which press against the wheels. C C, are the running wheels. D D and E, is the brake rod or bent lever connected by a pivot at F. The brakes are attached to this by chains connected with D D E, and pass through an eye on the shaft or axle H. L L, are two light sliding wheels. I, is a large lever shaft keyed on to the axle H, by K, a pivot joint. N, is a lever rod or handle.

Figure 2.



This is a ground plan of the invention and represents the parts minutely. As the same letters indicate like parts on both figures it is needless to refer to them again, only call attention to the arrangement of parts. The sliding wheels L L, form no part of the necessary running gear, they are for the purpose of operating the brakes by winding the chain G, around the axle H. When the cars therefore are running, the wheels L L, do not run on the track, but are what may be termed unshipped, that is, lifted up from the track by the powerful lever I, and the lever rod N, and when the brakes are to be operated, the lever drops the sliding wheels upon the track which then soon winds the chain round the axle H, and stops the cars by the action of the brakes upon the wheels. To keep the sliding wheels from the track when they are lifted up in the slot frame (which cannot be seen in the engravings,) the rod N, is made to rest and fixed to some convenient part of the locomotive, so as to let the engineer drop it and let the sliding wheels perform their described duty. Attached to the rod handle or arm N, a cord may pass over the cars for the conductor to operate the lever and brakes in cases of danger, as well as the engineer. The apparatus is simple, and can be attached with less expense than some other plans to cars and locomotives in use. Some mechanics have spoken highly of it. More information may be gained by letters, post paid, directed to the inventors at the place mentioned above, who we believe have taken measures to secure a patent.

Rapid Travelling.

F. X. Aubery, left Santa Fe on the night of of the 19th of May, and arrived at Independence on the morning of the 30th, the whole time out being eight days and ten hours; but he lost from detention by the Indians more than a day, and really made the distance of eight hundred miles in seven days. He left Santa Fe with six men, but they gave out before they had accomplished three hundred miles of the distance, and the remainder of the trip was performed alone. He killed 3 horses and 2 mules—walked 40 miles, was 3 days without provisions., and slept only four or five hours on the route. Such travelling is unexampled. The Indians attacked him, and obtained possession of all his baggage, provisions, packages of letters, &c., but he contrived to escape from them.

Dysentery.

Those having the dysentery or bowel complaint, will find an almost unfailing remedy, by procuring a small piece of the root of genuine Turkey rhubarb, and chewing a piece about the size of a cherry pit, once or twice through the day. If the genuine article is procured, the remedy is said to be almost sure, in whatsoever stage the disease may be.

The garden of the Empress of Russia on the island of Yelaguine has conservatories of glass which are upwards of two thousand feet in length. Eighteen columns support the roof; it is nearly eighty feet high, and upward of one hundred in width.

By a law of this State, any person who bets even a dime on the result of the Presidential election is deprived of his vote.

RAIL ROAD NEWS.

Railroad to the Pacific.

The stupendous project of uniting the waters of the broad Pacific with those of the Atlantic by a Railroad to the Bay of San Francisco, California, is one of great magnitude, but it is one which will, and must yet be carried into execution. A railroad will yet connect New York with San Francisco, and a line of steam vessels will cross the Pacific regularly, keeping up a continual communicatlon with China and the United States. Our country will then become the half way house between Europe and the land of silk and tea. Then New York will become the centre of the commercial world.

Railroad Suit.

The city of Nashville subscribed $400,000 to the stock of the Chattanooga and Nashville Railroad. Several of her citizens thought it an unconstitutional act, and to escape the burthen of so much additional taxation, we presume, filed a bill praying that the subscription be declared unlawful and void, and that the corporation be enjoined from paying the stock. The case was tried in the Nashville Chancery Court a few days since, and the bill was dissolved, the court declaring the subscription constitutional and lawful. This is a very important decision. The complainants defeated in Chancery, have determined to take the case by appeal to the Supreme Court of the state.

Pittsburg and Connellsville Railroad.

At the Convention of Delegates, held at the Court House, in the City of Pittsburgh, on Wednesday the 31st day of May, 1848, in regard to a subscription by the Commissioners of Alleghany County of one million of dollars to the Central Rail Road of Pennsylvania, the following resolution, offered by Robert Christy, Esq., was adopted, viz. That the Pittsburgh and Connellsville Railroad is a work of vast imporance to the various intersts of the county of Alleghany, and worthy of the most earnest support of the people of Western Pennsylvania, and that as soon as a charter is obtained from the State of Maryland for a company to construct a railroad from Cumberland to the line of Pennsylvania, a due regard for the interests of this section of country, and of Pittsburgh, its commercial metropolis, will constrain the citizens of Alleghany to aid in the construction of said road, by all the means in their power.

India Rubber Springs.

India rubber springs for railroad cars have come into use, and been applied to one of the cars on the Boston and Worcester Railroad, and found to work well. Each spring is comprised of several circular layers or rings of india rubber a thin metallic plate of the same size being interposed between each of the layers

The New Orleans Telegraph Line via the Mississippi Valley.

Dispatches by lightning from Memphis, show that the New Orleans Telegraph is working successfully to that point on the Mississippi. The line runs from Louisville via Nashville, to Tuscumbia, Alabama, and Columbus, in Mississippi, on its route to Memphis. The remainder of the line to New Orleans has all the posts up, and will soon be in full operation to the Crescent City. The line now working from Philadelphia to Memphis is about 1,300 miles long, and is part of "Atlantic, Lake and Mississippi Lines," constructed by Mr. Henry O'Reilly. This New Orleans line is worked by the new Columbian Telegraph, invented by Zook & Barnes. From Memphis to New Orleans, dispatches are forwarded by steamboats—thus shortening the communication between New Orleans and the northern parts of the Union.

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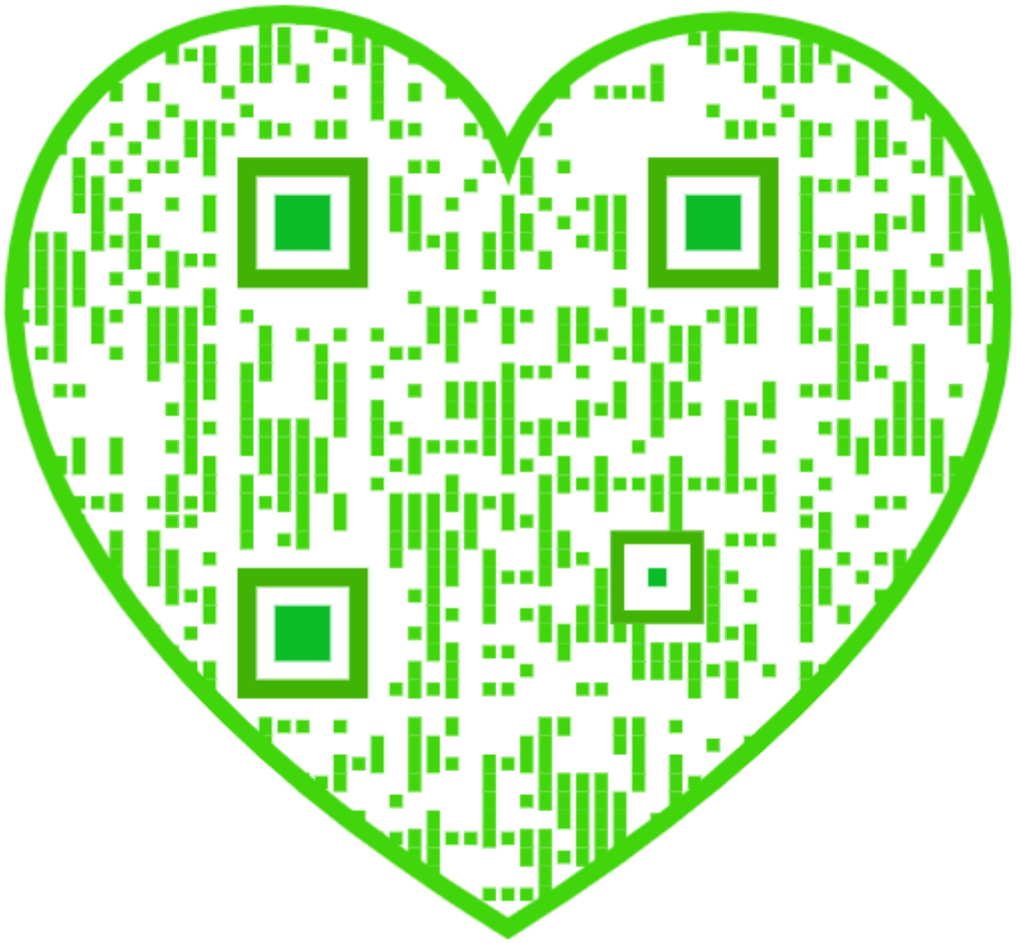

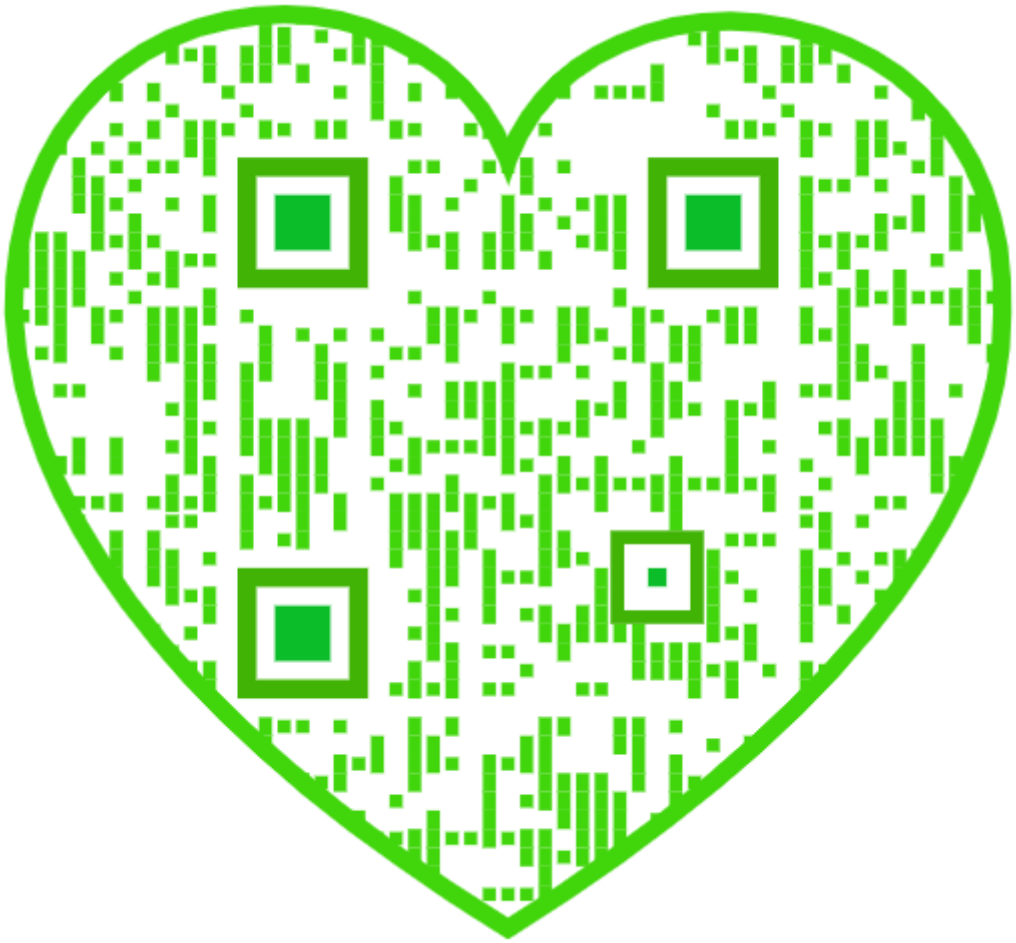

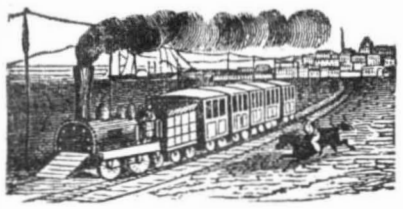

Lead Pipes.

Doctors Wood and Bache, in the "United States Dispensatory" for 1847, when treating of the properties of lead, give the following caution: "Water should never be kept in leaden cisterns on account of the risk of dissolving a small portion of the oxide of lead. The risk is greater in proportion to the softness and purity of the water." This subject of lead pipes is attracting considerable attention at the present time in this city. A long discussion has been going on, in regard to the proper material to be used for pipes, in distributing the Cochituate water in Boston.—Doctors Wood and Bache have ever been held in high authority, and if what they state, as above, is correct, it would appear to be highly improper to use lead pipes for house distribution.

Prize Essays by Working Men.

A clergyman in Edinburg, has proposed several prizes for essays, on the temporal advantages of the Sabbath to the working clases. The competitors were to be working men in the strictest sense of the expression. The number of working men, engaged at some kind of handcraft from morning to night, who have entered the lists on this occasion, is not smaller than nine hundred and fifty. This is creditable to the intelligence of the working classes of Scotland whose population is only about that of this State.

A Bold Push for News.

It is stated that the steamer America, in her recent wonderful trip from Liverpool, experienced a slight detention from the following cause:—During the passage, a vessel was seen in the distance with signals of distress flying. Capt. Judkins immediately bore down towards her, and when within hailing distance found it to be a Dutch barque, the skipper of which inquired the *news about the war in Mexico.*

Railroad Accident.

A serious accident occurred on Wednesday on the Richmond, Fredericksburg, and Potomac Railroad, within about 14 miles of Richmond. The axle of the baggage car gave way when there were four persons standing outside on the platform. In consequence of the breakage, the cars came in contact with each other, when the four persons outside were more or less injured.

Wonderful Marching.

The march made upon Rosales by the Missouri troops under Col Price, will compare with anything of the kind on record. The artillery under Lieut. Love, performed the distance of three hundred miles in seven days, and the last sixty miles in twenty-four hours. This was not a masterly retreat, but a run to meet the enemy, whom they encountered entrenched behind fortifications, and overcame them, although the besieged outnumbered the besiegers three to one.

Wool Trade in Michigan.

The wool trade of Michigan increases rapidly. The crop of the State last year was estimated at 1,600,000 lbs., of which 1,000,000 was a surplus for exportation. In 1841 the amount exported did not exceed 20,000 pounds. The stock of sheep has been largely increased, during the past season, and the surplus wool of this year, it is presumed, will reach 1,500,000 pounds.

Composition of Corn.

Starch 28,40, nitrogenized matter, 4,80, fat matter (oil) 35,60, coloring matter, 0,20, cellular tissue 20,00, dextrine 2,00; various salts 7,20, loss 1 80.—1000 00.

No other grain is so well adapted for fattening animals as Indian corn, and by grain driers preserving it from the effects of sea voyages, we may expect that grain will yet be shipped in large quantities to England, for the fattening of their cattle, as they now appreciate its value.

The Sun Flower.

This plant which always turns its face to the ruler of the day, was not used much for any thing but a horse medicine until within a few years. It has now become a valuable plant, both as a sure crop and and a useful one. From it is made a great quantity of oil which burns well, and is also very good as a mixture with the best linseed, for painting. By the hydraulic press 19 bushels of sunflower seed has produced 23 gallons of oil. The demand for this oil is on the increase, and it is not an unprofitable business for a farmer to engage in who has the funds to purchase a good hydraulic press.

Model Manufactory.

A Belgium paper says that a model manufactory for elastic stuffs has been established in Western Flanders, the intention being to give work for five years to twenty five weavers and sixty workmen. Some of these workmen after having learnt the trade, are to be drafted in rotation to various other manufactories throughout the kingdom, and their places in the model manufactory will be immediately supplied by others.

Fire at East Boston.

On Monday of last week five two story brick houses were burned at East Boston. The fire was caused by a defect in the chimney. Chimneys should be carefully inspected every few weeks. There is no safety in trusting to the honesty of sparks walking through the cracks of a chimney flue to have a dance among the shavings.

An Editor in Luck.

We see by the marriage list in our New Hampshire exchanges, that John S. Walker Esq., editor of the Clairmont Eagle, was lately married to Harriet H., daughter of the late George, B Upham, of Clairmont. The bride brings to her husband as a dowry, the nice little sum of $500,000 left her by her father.

Otto of Rose.

At the last session of the Franklin Institute, it was stated that the otto (or atter) of rose is both a volatile and essential oil, made generally in Turkey by immersing the leaves in water, when the oil rises to the surface, and is gathered by cotton. We seldom get it in its pure state, it being mixed with the oil of benseed, but, this may be detected by dropping it on clean paper, and evaporating; if pure, there is no trace left of it, but if adulterated, it leaves a translucent spot. The flower from which it is made, is not similar to our roses, nor does it have the same flavor, and the otto in its concentrated form is quite disagreeable.

The Bear and the Tea-Kettle.

The bears of Kamtschatka live chiefly on fish, which they procure for themselves from the rivers. A few years ago the fish became very scarce. Emboldened by the famine, and the consequent hunger, the bears, instead of retiring to their dens, wandered about, and sometimes entered the villages. On a certain occasion one of them found the outer door of a house open, and entered it; the gate accidentally closed after him. The woman of the house had just placed a kettle of fish in the court. Bruin smelt it, but burnt his nose. Provoked at the pain, he vented all his fury on the tea kettle. He folded his arms around it, pressed it with his whole strength to crush it, but this of course burnt him the more. The horrible growling which the rage and pain forced from the poor animal, now brought the neighbors to the spot, and a few shots put Bruin out of his misery. To this day, whenever anybody injures himself by his own violence, the people of the village all call him the "bear and the tea-kettle."

New Way of Sowing.

A Spanish Peasant, when he eats a good apple, peach, or any other fruit, in a forest, or by the road side, plants the seed, and hence it is, that the wood lands and road sides of Spain have more fruit in and along them, than those of any other country.

The Toronto Examiner states that the Niagara Suspension Bridge will be ready for the passage of vehicles next week.

Health Associations.

There exists throughout the large towns of Great Britain, "Health of Towns Associations," the object of which is to ascertain the actual causes that vitiate the general health, to ascertain remedies, and to carry them into effect. The Times has lately shown that remedies cannot be applied under the laws as they are. No family can be forced, contrary to their will, from a nest of disease. Charity is no match for cupidity, for possession, for ignorance, for domination of habit and for obstinacy, all sustained by the negations of the law. Success must begin in legislation; in a just municipal economy; then intelligent philanthropy can act out its wisest dictates. Philanthropy will instruct legislation.

Splendid Prize.

It is understood that the New York Art Union have purchased the well known and very beautiful series of pictures—the Voyage of Life—painted by Mr. Cole for the late Samuel Ward, Esq., for which the artist received 6,000 dollars. These pictures will be distributed as one lot by the Art Union in December next.

Gas.

The city of Providence is taking measures to light its streets with gas. "The Almy Gas Light Co.," have commenced laying pipes and putting up fixtures, and have purchased the old theatre lot for their works. The place having been heretofore badly lighted, the inhabitants evince great joy at the new way of illumination.

A Lump of Silver.

A cake of native silver, dug from the works of the Lake Superior Company, bed of Eagle River, has just been assayed at the U. S. Mint with the following results:

Weight—6 lbs. 10 oz. avoirdupois:

Assay—95 per cent silver, 5 per cent earthy matter. Value—$118 57, hard money.

A pocket full of such rocks would'nt be very bad. Money is the root of all evil but for all this Cooper Ellis used to say "recommend me to it."

What a Spike can do.

There was a grand turn out at Albany, on the 15th inst., to see a new steam ferry boat launched. The company were waiting in almost breathless expectation to see her go off—the band struck up a beautiful air—the stock was cut away, and the craft stood stock still; she would'nt budge an inch. After a close inspection, it was discovered that some mischievous person had driven an iron spike about a foot long, through the ways into her hull. This was finally removed, and off she went.

Fast Walking.

A young gentleman of this city, on Wednesday last undertook the feat of walking 4 miles in 40 minutes. He performed the distance in 47 minutes, thus loosing the race by 7 minutes.

We saw a man who walked 24 miles in 4 hours, and did not consider the feat much of a job.

Westphalia Hams.

The following compound will give to any common ham the taste so much appreciated in that sold at Westphalia, and is recommended to those who prefer that flavor. In one hundred parts of water dissolve four parts of salt, two parts of brown sugar, one part Barbadoes tar, and one part spirits of wine. After it has been well mixed and stood for several days, three table spoonsful may be mixed with the salt necessary to cure an ordinary ham.

Potatoe Disease.

In the spring of 1847, a farmer was advised by a neighbor to sow agricultural salt broadcast on the ground intended for potatoes, before it was prepared for the crop, after the rate of a peck to five square rods of land. He did so, and the crop proved a very good one, and has kept free from blemish or any particle of disease, throughout the winter to this time. On some ground adjoining he omitted to sow any salt, and the potatoes grown thereon were scabby and diseased. He came, therefore, to the conclusion, that salt is a preventive to the disease.

Improvement in St. Anthony's Falls.

A dam 16 feet high, and extending 706 feet from the Wisconsin, to a small Island in the Mississippi, a short distance above the principal Fall is nearly complete. Upon this dam, (which is of heavy timber,) will be erected at intervals of space, mills to run 16 saws, and also a flouring mill. It is designed to complete the whole the present year if possible. A portion of the saws will begin to operate by the first of August Vast bodies of timber lie contiguous to the Falls and from them the above works will be supplied.

Dust of Roads.

Forty-one Physicians of St. Louis over their signatures say that the dust arising from McAdamized roads in dry weather produces inflammation of the eyes, and by being inhaled produces various diseases of the respiratory organs, such as chronic, laryngitis, bronchitis, consumption, &c.

Be Firm.

The wind and the waves may beat against a rock, planted in a troubled sea, but it remains unmoved. Be you like that rock, young man. Vice may entice, and the song and the cup may invite. Beware. Stand firmly at your post. Let your principles shine forth unobscured. There is glory in the thought that you have resisted temptation and conquered. Your bright example will be to the world what the light-house is to the mariner upon a sea-shore. It will guide hundreds to the point of virtue and safety.

A new opathy called Isopathy has been started in Germany. According to this system, when a person is afflicted in any particular part, say the liver, or the lungs, he is dieted on the liver or lungs of animals until he is cured—or otherwise!

An acre of ground will contain one hundred and sixty fruit trees, 16 feet apart each way, 4,843 hills of corn 3 feet apart each way, 174,250 stalks of wheat six inches apart each way, 6,2722,540 blades of grass one inch apart each way.

The glass manufacturers of Philadelphia have discontinued the blowing, flattening, and cutting of glass on the Sabbath day, and they invite the co-operation of other manufacturers.

A gentleman from Wisconsin, is at present engaged on Prince Albert's farm at Windsor, England, in making experiments as to the production of Indian corn in that country.

A writer in an Irish journal, in mentioning the wreck of a vessel, rejoices that all the crew were saved, except four hogsheads of tobacco.

It is stated, that during the last forty years the colored race of the South have increased from one to three millions, at least.

The Rev. Dr. Stone, of Brooklyn, N. Y. has recently inherited an estate of $400,000 by the decease of a gentleman in England.

Mr. Downing, agent of House's Telegraph, offers to test the merits of House's plan and Morse's on a bet of $3000 that House's is the smartest. Mr. Smith has now a chance.

There are employed on the Canals in the State of New York, over 30,000 men, 7,000 boys, and 4000 women, making in all more than 41,000 persons.

The figures upon the magic porcelain of the Chinese, are executed in such a manner that they are invisible when the vessels are empty, but become apparent when they are filled with water.

The proportion of phosphorous in the brain of persons of sound intellect, is from 2 to 2.5 per cent. In the brain of maniacs it is from 3 to 4.5 and in the brain of idiots only from 1 to 1.5 per cent.

The best way for a man to overcome evil, is by doing good. No grief arises from reflecting upon good actions.

There are in Great Britain two millons of Sunday school scholars, taught by 260,000 teachers.

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Chemistry applied to the Arts.

In dyeing certain colors, it is necessary that a large proportion of oxygen should be united with the cloth to be dyed, before applying the coloring matter; and many complicated processes have been invented by different dyers, with a view of condensing the greatest proportion possible.

The old process of bleaching consisted in exposing the yarn or cloth to air and light, and sprinkling the cloth occasionally with water. In this process the light promotes the union of the oxygen of the air with the coloring matter of the cloth, or rather with the elements of the coloring matter—carbon and hydrogen forming with them carbonic acid and water. A long time would be occupied in converting the whole of the coloring matter of the cloth into carbonic acid and water; to shorten the process, the cloth is sprinkled with water from time to time, which carries off the partly decomposed coloring matter, and leave a fresh surface to be acted upon by the air. This process is, however, much too slow for the manufacturer of the present day, who always uses chlorine in bleaching cloth, calico, &c.

Oxygen has a great tendency to unite with most metals to form oxides, or rust; it is, therefore, of great importance that we should be able to prevent this union totally, or in part; the object to be attained is to prevent the contact of oxygen and the metal—this is accomplished in various msnners under different circumstances. By coating the metal with paint, we prevent its rusting—the color in the paint is not acted upon, that being already united, where metallic paints are employed, with as much oxygen as it will take up; still, as the oil and turpentine in the paint, both become decomposed in time by uniting with oxygen, the paint requires to be renewed occasionally. Paint cannot, however, be employed to protect metal that is exposed to heat. Blacklead (carbonate of iron) is better adanted to protect metals exposed to a heat, not too intense, such as stoves, engine boilers, &c. All metals, however, do not require to be painted in order to preserve them from the destructive effects of oxygen, for this reason:—the first coat of oxide formed on the surface of the metal being insoluble under ordinary circumstances, and impervious to air, serves to protect it completely from all further corrosion.

Most explosive compounds owe their rapid combustion to the fact that they contain a substance, readily decomposed, yielding oxygen sufficient for the combustion of the other ingredients forming the compound, which are all capable of uniting with oxygen, and forming gaseous compounds,—for the force of the explosion depends upon this sudden conversion of solid matters into gases. There are certain explosive compounds which contain no oxygen; the explosion in this case depending entirely on the facility with which solid or liquid substance is resolved into its simple elements, which, in most instances, are gases.

Ice.

Ice, when converted into water, absorbs and combines with 149 degrees of caloric. Water, then, after being cooled down to 33 degrees, cannot freeze until it has parted with 150 degrees of caloric: and ice, after being heated to 32 deg., which is the exact freezing point, cannot melt till it has absorbed 140 degrees more of caloric. This is the cause of the extreme slowness of the operation. There can be no doubt, then, that water owes its fluidity to its latent caloric, and that its caloric of fluidity, is 140 degrees. However long we may boil water in an open vessel, we cannot make it the smallest degree hotter than its boiling point, or 212 degrees. When arrived at this point, the vapor absorbs the heat and carries it off as fast as it is generated. Hence in cooking, we attain the general heat at the boiling point, though by increasing the fire, we increase the evaporation. Owing to the quantity of caloric that liquids require to convert them into vapor, all evaporation produces cold. An animal might be frozen to death in the midst of summer, by repeatedly sprinkliug ether upon, him. The evaporation would shortly carry off the whole of his vital heat.

Ancient Metals.

Of the use of these, the Scriptures make very early mention. In the days of Moses, gold is spoken of as put, and sometimes kept in a liquid state, while it is beyond our power to reduce it to a powder. The corners of the stones of the pyramids are so sharp as to break the skin of the hand when passed over them, and so hard as to resist the sharpest steel. The French found great difficulty in carving two lines upon the obelisk now in La Place Concorde; yet the ancients had covered all the facades with figures. According to history, they had an art, now lost, of making copper, (one of the softest of all metals) harder than steel, and it was of this they made their tools. The famous Delhi Blades, as it is well known, are unrivalled. They would cut off the heads of a row of bob nails placed one after another without dulling their edge; and were yet so pliable that the point could be made to touch the handle. Then the warrior, too impatient to wait for his sword to be cooled in the usual way, snatched it red hot, and waving it in the air, thus gave it its temper. They tried in Paris lately, thus to temper steel, but without success. Scott gives a description of the swords of Richard, which cut down steel with the same facility. The cannons of the British in India, it is well known, soon became honeycombed by the dampness of the dew, and to be totally useless in war. The lines of Byron, on the rust upon the steel of the warriors, are according to truth, though that warrior had lain but one night beneath the open sky. Necessity has been to the East Indian, the mother of invention. He will take the cast off hoop of an English cask, and make of it a sword equal to the best Parisian blade. The pliability of the steel of the ancients was wonderful, but that of their bronze was more so.

The Nitre Lakes in Egypt.

What a singular scene! In the midst of this sandy waste, where uniformity is rarely interrupted by grass or shrubs, there are extensive districts where nitre springs rise from the earth like crystalized fruits. One thinks he sees a wild waste overgrown with moss, weeds and shrubs thickly covered with hoar frost. And to imagine this wintry scene, beneath the fervid heat of an Egyptian sun, will give some idea of the strangeness of its aspect. The existence of this nitre upon the sandy surface is caused by the evaporation of the lakes. According to the quantity of nitre left behind do these fantastic shapes assume either a dazzling white color, or are more or less tinted with the sombre hue of the sand. The nitre lakes themselves, six in number, situated in a spacious valley between two rows of low sand hills, present a pleasing contrast in their dark blue and red color, to the dull hues of the sand. The nitre, which forms a thick crystalized crust upon these shallow lakes, is broken off in large square plates, which are either of a dirty white, or of a flesh color, or a dark deep red. The Fellahs employed upon this labor stand quite naked in the water, furnished with iron rods. The part which is removed being speedily renewed, the riches of its produce are inexhaustible. It is hence that nearly the whole of Europe is exclusively supplied with nitre; and this has probably been the case for ages, for Sinard mentions, at the commencement of the last century, that then six hundred and thirty thousand weight of nitre was annually broken for the Grand Seignor, to whom it yielded thirty six purses.

War.

Men, who can do nothing but by union, who can be happy only by peace, madly arm themselves for their misery, and fight for the accomplishment of their ruin; and when the din of war is ended, they behold the earth lying in desolation, the arts buried, and their real power annihilated. Between England and France, those two kingdoms alone, in the course of seven hundred years, there have been 266 desolating wars, and the loss of millions of lives.

Amongst the things which the Germans have conquered by their Revolution, is "the right to smoke in the streets." Boston has taken pattern.

Receipts for the Cure of Hydrophobia.

Take of the red chick-weed (*herba anageiis ruber*) that has been dried, one handful pour two quarts of good beer on it, and boil it in a new earthen pot (the pot must be covered with a close lid until half the liquor boils away,) it must be boiled over a slow fire, the vessel in which it is boiled must be kept very clean, and used for no other purpose. When the herb is boiled enough, it must be strained through a clean cloth and well squeezed, so that the substance may be all taken out of it, than add to the decoction two drachms of the best Threriaca Venti, it must be well dissolved and mixed with the decoction. Of the above decoction give to a man or beast in the morning, fasting, the following proportions. A man of strong constitution must take a pint of it, and that at one time if possible, if not at once, take it at short intervals, but if taken at one draught it is best. If there should be symptoms of madness, the medicine must be taken two or three mornings in succession; but if actual symptoms of madness should exist, a larger portion of the herbs should be added to the said quantity of beer. A woman should take less of the beer than a man, say about 3 or 3 and a half gills—for children the medicine must be regulated according to their age and constitution. It must be likewise observed that children can bear more of it than grown persons in proportion to their age.

The mother or person that nurses the child should take an extra portion; if the child would receive one or two spoonsful of the medicine it would be sufficient. A horse should be given one pint; a cow 20 spoonsful, a heifer or dog, according to age, size and strength—the medicine to be taken warm and well shaken—it must be taken in the morning, and fast must not be broken for three or four hours after taking it. No cold or fresh water must be taken, otherwise serious consequences might arise. On the day of taking the medicine, the person must abstain from spoon victuals, particularly of milk or warm beer. A beast must not be watered on that day; and a person must, for two weeks abstain from the following eatables, viz: Meat and pork of all kinds, cabbage, peas, beans, fish or water fowls. If a person is bit through the skin, the wound must be scratched with a chip until it bleeds and washed with some of the decoction; this may be done for two or three days. If the wound requires dressing, make a plaster of the threriaca venti (venice treacle) twice a day until the wound is healed. Observe, that before dressing, the wound must be clean washed, with the decoction After having made use of the medicine, the person must put on clean linen and change all his clothes and bedding, which must not be worn except perfectly clean. All straw that a beast has lain on must be burnt and the stable cleansed.

Another receipt for its cure is, as soon as the wound is made, to cup the lacerated parts. In case no physician is at hand, or inability to procure a set of cups, an ordinary tumbler can be used as a substitute by exhausting the air in the glass with a piece of lighted paper. The cupping process cannot fail to draw the virus from the system.

Bathing with the chloride of lime is also good.

As Good as a Yankee Trick.

A New Yorker in Vermont, being "dead broke" and wishing to reach Hudson, gave a fellow his jacket, to start the report there that he was Mosher, the anti-renter, for whom a reward has been offered by Gov. Young. The trick took, a Vermont constable arrested the broken merchant, and took him nothing loath to Hudson. When he reached that place instead of pocketing the one thousand dollars he was surprised to find that he had got the wrong man, who gave not the least intimation that he intended to return to the constable, the cost of passage to Hudson.

Seidlitz Powders.

Each dose contains 25 grains of tartaric acid in the white paper, and 30 grains of supercarbonate of soda, mixed with two drachms of glauber salts in the blue.

Add a little sugar and a few drops of the essence of lemon to the above, and it will make good lemonade.

To Preserve Strawberries.

Strawberries for preserving should be large and ripe. They will keep best if gathered in dry weather, when there has been no rain for at least two days. Having picked them all, select the largest and firmest, and spread them out separately on flat dishes; having first weighed them, and allowed to each pound of strawberries a pound of powdered loaf sugar. Sift half the loaf sugar over them. Then take the inferior strawberries that were left, and those that are over ripe, mix them with an equal quantity of sugar, and mash them. Put them into a basin covered with a plate, and set them over a fire in a pan of boiling water, till they become a thick juice; then strain it through a bag and mix with it the other half of the sugar that you have allotted to the strawberries, which are to be done whole.—Put it into a porcelain kettle and boil and skim it till the scum ceases to rise; then put in the whole strawberries with the sugar in which they have been lying, and all the juice that may have exuded from them. Set them over the fire in the syrup, just long enough to heat them a little; and in a few minutes take them out, one by one, with a teaspoon, and spread them on dishes to cool; not allowing them to touch each other. Then take off what scum may arise from the additional sugar. Repeat this several times, taking out the strawberries and cooling them till they bcome quite clear. They must not be allowed to boil; and if they seem likely to break, they should be instantly and finally taken from the fire.—When quite cold, put them with the syrup into tumblers, or into white queensware pots, and cover close with fine paper.

Preserving Currants.

Currants and gooseberries may be preserved all the year round, as fresh and sweet as when taken from the bush. The fruit should be plucked while green, or before the berries assume the red color, which precedes and heralds maturity, and put into clean dry glass bottles, which should be corked and sealed tight, and placed in the cellar, or some other cool place, an ice house would be the best.

To Preserve Cherries.

Take large ripe morella cherries; weigh them, and to each pound allow a pound of loaf sugar. Stone the cherries, (opening them with a sharp quill,) and save the juice that comes from them in the process. As you stone them, throw them into a pan or tureen, and strew about half the sugar over them, and let them lie in it an hour or two after they are all stoned Then put them into a preserving kettle with the remainder of the sugar, and boil and skim them till the fruit is clear and syrup thick.

Cabbage and Greens.

All the cabbage tribe which includes cauliflower, brocoli, coleworts, sprouts, and turnip tops, in order to be delicate, should be dressed young, when they have a rapid growth but if they have stood the summer, they require the influence of the frost to become tender. In order to appear green at table, they must be boiled in hard water. Greens of the above description when of advanced growth, are better flavored when boiled in two waters, which is managed in the following manner. After they have been about half boiled, take them out of the pot, place them in the colander, and allow water to run on them for two or three minutes; then replace them in a fresh pot of boiling water, with some salt, and let them continue to boil briskly till done, Cauliflower should boil more slowly, as it is apt to be broken by the force of a violent ebullition. Brocoli, to be freed from its offensive odor, should be boiled in two waters.

Gropher Hunt.

A litttle animal called the "gropher" is very troublesome to the farmers in the Western States, throwing up mounds to the height of from twelve to fifteen inches. They are peculiarly destructive in corn fields. A few days since, the inhabitants of Porter, Wisconsin, had a hunt for the purpose of annihilating all the grophers in that vicinity. Forty men went to work, and succeeded in killing three thousand one hundred and ninety-six grophers.

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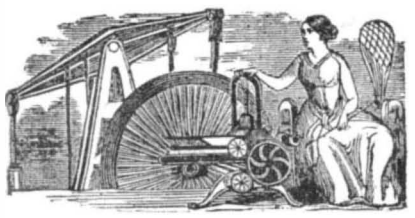


New Inventions.

Improvements in Saw Mill Gearing.

Mr. J. Moreland, of Adrian, Michigan, has sent us an account and drawing, (which we may yet be able to publish) of a new improvement in getting up the speed of reciprocating saws from the crank shaft of a steam engine. He employs a peculiar face plate with slides working in guides and connected with the pitman by crank pins in such a manner that a great velocity may be given to the saw with only a medium velocity of the engine. The plan is a simple and economical one.

New Spoke Machine.

Mr. Emerson Goddard, of Petersham, Mass. has invented a new Spoke Machine, which will turn and tennon 20 spokes in a minute. All that is required is to place the wood on a bench, the large ends all one way. It is self feeding and self piling, leaving them when turned in a regular pile under one side of the machine, opposite to the feeding side. The above number turned out per minute, are of 23 inches in length. Lasts and fork handles, Mr. Goddard writes us, can be turned in it with nearly the same facility as spokes. We trust to be able to present an engraving of this machine in a future number.

Improved Faucet.

We have recently seen a newly invented Faucet or Stopcock, designed chiefly for water pipes, it is the invention of an ingenious machinist of Boston, and we hope soon to present an engraving of it. It is so arranged that by pressing a small handle, the water flows, but, on releasing it, the water, by its own action is instantly shut off. We remember a while ago that goods to the amount of several thousands of dollars in one of our stores in the lower part of this city, were damaged by the carelessness of the porter, who left the Croton water running over night. With this improved Faucet such an accident could never happen.

New Carriage Hub.

Mr. Harvey Baker, of Oneonta, Otsego Co., N. Y., has invented a new and exceedingly beautiful improvement in the mode of making carriage hubs. They are so constructed that a new spoke may be put into the wheel without taking the wheel off the axle or without removing the felloe. We will call attention to this improvement more at length at some other time. Measures have been taken to secure a patent.

Steam Boiler Alarm.

Mr. H. B. Furnald, of Mass., has recently invented an improved Steam Boiler Alarm, which consists in so applying a steam whistle to the boiler as to give an alarm to the attendant whenever the water is too low. An engraving will probably appear in the Scientific American in a short time.

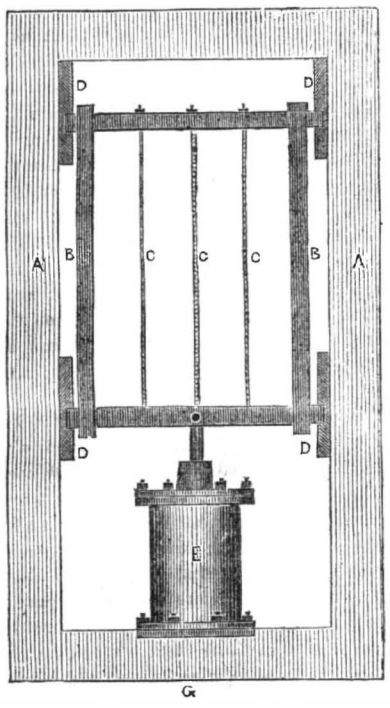
Self-adjusting Ox Yoke.

The Maine Farmer gives an account of a very excellent Yoke, invented by a Doctor Holmes, for lightening the toil of the patient ox. It is so constructed as to prevent what is technically termed "crowding" and "hauling." The principle of its operation is this —a bolt passes up through the yoke, instead of the staple, having an eye in the lower end in which the ring is placed. Near the upper end of the ring is placed an iron cog wheel or pinion, which plays loosely upon the bolt.— An iron rack is placed on each side of the pinion. One of the racks is attached to a block at the right end and another to a block at the left end of the yoke. The bows pass through these blocks, and the blocks slide back and forth in a slot made in the yoke. It looks rather odd but it fits as easy, is no heavier, and is as strong, and a little stronger than the common yoke. It can be arranged in five minutes, so as to give either ox the advantage as wished, and the sliding of the bows to or from, will keep the same relative distance.

Ocular Discovery.

The Worcester, Mass., Telegraph says that Mr Paine of that place, whose Spectacles we noticed last week, has made another important and wonderful discovery, which, should it prove *lasting*, will confer invaluable blessings on all spectacle wearers and poor sighted persons who avail themselves of its benefits. The discovery consists in the restoration of sight by means of etectricity applied with an instrument of the most delicate construction. The editor of the Telegraph says "we are not at liberty to give a detailed account of the discovery at present, but we can say that we have been personally benefitted by one or two experiments to which we have submitted, and in which the sensations produced by the application of the battery were of the most agreeable nature. And more than this—we know a lady of this city, who ten days since could not read the title letter on the first page of our paper, nor even distinguish it from the Boston Bee, without the aid of glasses ; nor could she read a common sized print without the use of a powerful lense. She can now read the former across the room, and can read a common newspaper print without glasses! We could not have believed it, had we not known the result of the experiments from observation."

Improvements in Sawing Machinery.



This is the invention of Mr A. F. Ward, of York, Pennsylvania, and relates to applying the direct power of the piston to upright saws working in a slide frame. The principle of this invention has been described before in the Scientific American, but it is here made plain to all. The crank and crank shaft of a reciprocating engine, is allowed to waste some power, although not so much as some would lead us to believe. By this arrangement no power is lost by dead points, the action of the steam is applied direct to the work and the slide valves can be worked most admirably, while the speed can easily be regulated, but especially for sawing very heavy timber the plan is excellent. Measures to secure a patent have been taken, and there is no doubt but the invention will commend itself to all interested in saw mills.

A A, is a cast iron frame. B B, the saw frame. C C C, gang of saws. D D, the slides which work in grooves and are fitted nicely, so as to produce little friction, for in the inside of the slides are small friction wheels on a level with the face of the slides which beautifully lessen friction by the slide action. E, is the steam cylinder and F, the piston rod.— The power is applied to the work in a direct line. The feed motion is not displayed, but those acquainted with the art will readily perceive how that can be applied in the common way. The engine may be worked with the cut-off, or with the full power of steam the whole length of the stroke, as may be found most suitable.

Fire-Escape Ladder.

A small model of a fire-escape ladder was exhibited last week at Tammany Hall. It is the same as has been adopted by the fire department of Pittsburgh, Pa., and appears to possess many merits. Strong and compact it runs along on two wheels, and can be raised or lowered fifty feet in a few seconds, by one man. By it the firemen and hose can be taken up to any required height, and to places otherwise inaccessible, and persons or valuable goods rescued promptly from burning buildings. Firemen, house painters, and persons putting up telegraphic wires, should examine it. It would also be an excellent apparatus for every farmer for hand pulling his fruit.

Glass for Leather Cutting Boards.

North Bridgewater, Mass., June 9.

As your valuable journal is a grand repository for every thing useful in the arts and trades, I send the following :—

At the suggestion of a friend I have discovered that glass is an excellent substitute for a board to cut leather upon. To boot and shoe manufacturers it will be a most valuable substitute, being in the end much cheaper and does not dull the edge of a good knife any more than wood, if as much. I suggested the idea the other day to a shoe cutter and he laughed at me. He finally tried to cut on a large square of common glass and the next day he used it altogether and found it to far excel wood. Please try it yourself satisfactorily, and if you think enough of it to impart the idea to the world you will do a favor to many mechanics.

Yours, &c. J. T. Packard.

Bleaching Resin and Shellac.

The two following processes for bleaching rosin and shellac, taken from Examiner Page's Report of the Patent Office, will be found very interesting.

For rosin, take 12 gallons of caustic potash or soda of 5° to 10° degrees hydrometer, for heavy liquids, and raise the ley to a boiling heat. This is then charged with a barrel of rosin and the heat continued until the water boils through it. Then add 15 gallons of boiling water, continuing the heat with agitation, and when it has boiled five minutes the heat is discontinued, but the agitation is kept up as long as practicable. The alkali is drawn off and the coloring matter washed out with boiling water.

The shellac is first treated by heat with pure carbonate of potash and afterwards with chloride of lime and chloride of soda. Tartaric acid is then added to the solution, when the pure gum floats on the surface and is removed and washed. This process should also bleach Gutta Percha.

New Loom.

A correspondent of the Farmer and Mechanic states that Mr. Henry Kelly, of Manayunk near Philadelphia, has invented a new loom, which does away with the use of the treadle, and can work small patterns equal to the Jacquard, while it is only about one fourth the cost in making.

Broom Reform.

A mechanic at the mills on the Ramapo river has invented a machine for making brooms which threatens to exterminate broom corn. It takes a billet of white ash, and in a trice cuts it fine like the Manilla grass used for brushes. The brooms can be made for two cents each, and they are said to work quite as well in every respect as corn brooms, and to be much more enduring.

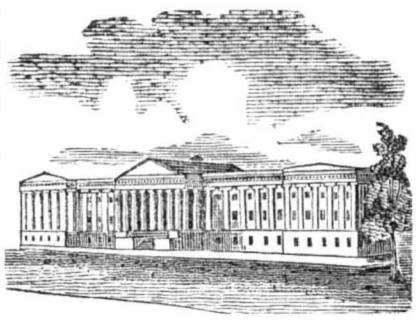
New Telegraph.

The Editor of the Cincinnatti Commercial announces that he has perfected and patented a new telegraphic machine which he thinks will prove superior to any now in use, and will surpass them in speed as six to one

Patent Shirt Collar.

A shirt maker in London, has invented a shirt collar, which he calls the "New Economic Shirt Collar." It has a recess or a kind of pocket in the band, in which are placed two or three extra collars to be turned up when required.

This is equal to the blacksmith in Albany, who used to put on six shirts at one time, once every six weeks.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending June 13, 1848.

To W. S. McLean, of Alleghany City, Penn. for improvement on Sash Stopper. Patented June 13, 1848.

To William H. Danforth, of Salem, Mass., for improvement in machinery for cutting and punching Copper Sheathing, &c. Patented June 13, 1848.

To Oliver S. Judd, of New Britain, Conn., for improvement in pullies for Window Sash. Patented June 13, 1848.

To Robert Tyhurst, of Petersburg, Penn., for improvement in Smut Machines. Patented June 13, 1848.

To Peter Lawson, of Dracut, and Aaron H. Sherman of Lowell, Mass , for improvement in Weavers' Shuttles. Patented June 13, 1848.

To Daniel Deshon, 2d., of New London, for improvement in Meat Cutters. Patented June 13, 1848.

Te Elisha S. Snyder, of Charlestown, Va. for improvement in machines for separating Straw from Grains. Patented June 13, 1848.

To John H. Schomaker, of Philadelphia, Penn., for improvement in Piano Fortes.— Patented June 13, 1848.

To William B. North, of Jersey City, N. J. for improvement in Cotton Presses. Patented June 13, 1848.

To Samuel Streeter, of Detroit, Michigan, for improvement in Water Wheels. Patented June 13, 1848.

To Elisha F. Aldrich of New York City, for improvements in Propelling Vessels. Patented June 13, 1848.

To Charles Lucas, of Charlottesville, Va., for improvement in drafting and measuring Garments. Patented June 13, 1848.

To Jordan L. Mott, of New York City, for improvement in the process of chilling Castings. Patented June 13, 1848.

DESIGNS.

To Michael Gibney, of New York City, for Designs for Spoons and Forks. Patented June 13, 1848.

To William Savery, George P. Bowers, and Joseph Pratt, assignees of H. V. Losea and J. H. Conklin, for Design for Stoves. Patented June 13, 1848.

RE-ISSUES.

To Isaac Adams, of Boston, Mass., for a Power Printing Press. Re-issued June 13, 1848.

To S. F. B. Morse, of Poughkeepsie, N. Y., for improvement in the mode of communicating information by signals by the application of Electro Magnetism. Re-issued June 13, 1848.

To S. F. B Morse, of Poughkeepsie, N. Y. for improvement in Electro Magnetic Telegraphs. Re-issued June 13, 1848.

INVENTOR'S CLAIMS.

Jointing Staves.

To Alanson C. Currier and Abel Bradway, of Monson, Mass. For improvement in machinery for Jointing Staves. Patented April 4, 1848. Claim —Having thus fully described our improved machine for jointing staves what we claim as new, and desire to secure by letters patent, is the adapting the jointing cutters to staves of various widths, by securing the cutter wheels in supporting adjustable bearings united to each other at a common centre, and combining with the same adjustable rests for supporting the edges of the staves, substantially in the manner herein set forth.

Twenty nine iron factories have been established in five counties in Pennsylvania during the past two years.

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NEW YORK, JUNE 24, 1848.

Selling an Invention before a Patent is secured.

There is no point in connection with inventions, that so much inquiry is made about, as the right by law to sell an invention without injury to a " full and exclusive right," prior to the securing of a patent. Judge Nelson's decision is quoted as adverse to such a sale, and there are strong fears that the sale of an invention before a patent is secured, invalidates the patent.

We know that it is possible for eminent jurists to make wrong decisions—decisions adverse to the very spirit and letter of the law. This would be but a small affair were it not for the pernicious evil of subverting or making such decisions paramount to the law itself.—This is so painfully true regarding common law, that it is all whittled down to the accumulated opinions of men regarding it. These commentators are as widely different in their notions as our scriptural ones, but there is this great difference between the two classes, the people may believe in any legal creed they choose, but they must abide by the teachings from one altar, and it is not every one that dare minister there. This may be right and it may be wrong, but the 7th section of the Patent Laws of March 3d, 1839, is certainly clear enough in reference to the right of sale of an invention for two years prior to the securing of a patent (if sold with the declared right of personal reserve." That section reads thus :—" And be it further enacted, that every person or corporation who has, or shall have, purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture or composition of matter so made or purchased without liability therefor to the inventor, or any other person interested in such invention ; and no patent shall be held to be invalid by reason of such purchase, sale or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent."

Report of the Patent Office.

The Report of the Patent Office for 1847, is just issued from the press, not in its " dilatory career," from any fault of the Patent Office but from the unsurpassable carefulness of Congressional legislation to make the claims of honest industry and inventive genius subjects of moment to the country.—Party spirit, bitter personal feelings, war, blood and bones, are finer subjects for the orator to declaim upon from the forum than encouragement to science and art, or protection and justice to our Inventors. It may be that science and art are subjects of incomprehensibility to the majority. In that case, some charity must be exercised. But it is a humiliating thought to us to reflect upon any official department of our government being ten months in arrears with their business, as our Patent Office has been during 1847. Expeditions to the Dead Sea, &c are commendable, we like to encourage scientific discovery and research, but encouragement and justice to the discoveries in science and art at home, should first be covered with the wing of home protection. This has not been done to our Inventors, or else the Reports of the Patent Office, containing more truly useful information than all the Reports presented to Congress during this term put together, would not have been so long in appearing before the public. The Reports of the Examiners, too, would have been enriched with minuter descriptions than they are, owing to the " embarrassed condition of the examining corps," as Examiner Page says, " not being able to give a more *patient investigation* of the subjects brought before them." Examiner Fitzgerald says, " that nearly half the applications referred to his desk during the year remain unnoticed in consequence of a notorious inadequacy of force to make the *requisite* examinations." We trust that these complaints will never need to be made again.

Mr. Burke, the Commissioner, recommends for the benefit of inventors, the decisions of the Chief Justice of the District of Columbia, as made upon appeals from the decision of the Commissioner of Patents, to be published by Congress. This recommendation is one of interest to inventors, and the Commissioner is entitled to their thanks for his recommendation, as this was a subject unthought of by others, the importance of which is apparent at a glance.

Mechanics Associations.

Mechanics' Institutions, besides being schools for the education of the intellectual faculties of the individual, ought to provide equally, if not, more fully, for the cultivation of the moral part of his character. This, it appears to us, is the most important element of the man—that which tends to make him a good member of society. Further, by bringing him up to this standard, there is much reason to believe that his intellectual faculties will be more susceptible of elevation, more easily awakened, and more vigorous in their efforts. The error, which many founders of Mechanics' Institutions, fell into, was the assumption of an intelligence which no previous training had awakened: they appealed to a wrong standard, they measured the capabilities and tastes of the laboring man by a standard which existed only among persons, who had enjoyed, from childhood, means of instruction more complete than was sought to be provided for the working man for the first time in the middle of his life. This error was natural. Let us now improve by experience: most of our Mechanics' Institutions are composed of working men—let them study their own wants, the wants which they know to be most felt by their order, laying aside that the details of science alone are appropriate subjects of attention, and that amusement is folly, and mirth iniquity, let them, in fact, study to furnish to their institutions the largest possible amount of sound instruction combined with the highest possible amount of cheap and innocent excitement. In this their duty consists, and in this will be found the success they desire, and to this we have always pointed. With scientific subjects we have always combined a moral and cheering encouragement in the pursuit of happiness, by the practice of noble actions. By such means our mechanical classes alone can be elevated.

Patent Suit.

The suit Batten *vs.* Clayton and others before Judge Kane of the U. S. Circuit Court, Philadelphia, for the infringement of a patent right for the combination of a pair of toothed rollers to break coal, with a screen to sort and clean the same,—that is, for turning simultaneously, by connected gearing, two things alleged to have been heretofore turned separately, and not together,—has been laid over until the next term.

The hard coal we burn owes its uniformity of size to the use of cast iron rollers, having projecting points upon the surfaces. Between these rollers, revolving with great speed, the coal is dropped, and being cracked into small pieces, it falls thence into a revolving wire screen of different meshes,, which sifts it into five different sizes, rejecting the dust, &c. Mr. Batten claims to be the first who combined the breaking and screening apparatus together. If this is correct, his patent will be sustained, unless the same principle is borrowed from another machine, that may be devoted to a like purpose although it may be a different article from coal.

Lumber.

The lumber business in Pennsylvania has been exceedingly brisk during the season. The lumber merchants have made very heavy purchases.

Machinery for a Cotton Factory.

Having frequently received communications from different gentlemen in the South and South-western States relative to the price of certain machines and the average amount of the whole machinery, &c. connected with a Cotton Factory, we have availed ourselves of the valuable and thoroughly practical knowledge of Mr. Montgomery, whose writings in the Scientific American have attracted so much attention among our manufacturers.—The following will be found to be of much importance to all those desirous of engaging in the Cotton Manufacture.

Cost of 1000 " Ring" Spindles and Preparation.

MACHINERY.

1	Mason's Whipper,	$75
1	Picker and lapper,	350
4	double doffing cards	1000
1	Drawing Frame, 3 heads,	225
1	Slubber, 36 spindles,	700
1	Fly Frame, 84 spindles,	800
1000	Ring spindles, at $4 each,	4000
2	Reels, $35 each,	70
1	Bundling Press,	50
1	Baling Press,	75
		$7,345

FIXTURES.

4	setts Card Clothing, at $60,	$240
	Cans and Bobbins,	200
	Shafts, Pulleys and Belts,	700
	Turning Lathe,	50
1	10 horse power engine,	1200
	Extra charges for fitting up,	150
		$2,540

Total cost of machinery and fixtures, $9,885

The above is a detail of the cost of 1000 spindles and preparation, without looms.—Without going into detail, $10 per spindle is a safe calculation. 100 spindles is the common estimate per horse power.

12 looms with accompanying machinery consume one horse power. 40 looms should be allowed to 1000 spindles for spinning medium Nos. say 20's to 30's. Looms cost $65 each.

The cost of 1000 spindles with preparation and weaving machinery, would be as follows:

Whole cost of 1000 spindles and preparation, (deducting price of Reels and Bundling Press, which are not needed for weaving) is, $9,765

40	Looms, at $65 each,	2,600
1	Dresser,	450
1	Warper,	100
1	Spooler,	80
	Extra charge for steam engine, say	350
	do do for shafts and belts,	250
	Total,	$13,595

From this detail it appears that the cost per spindle *with* looms, is $13,60, but a safer calculation would be $14 per spindle.

For 100 spindles without looms I would recommend a one story building 100 feet long and 50 feet wide. If looms are added 140 feet long and 50 feet wide. For two or three thousand spindles, let the building be two or three stories high, each story the same in capacity as above recommended.

As the cost of labor and materials in different localities vary, I refrain from giving any estimate of the cost of building a mill to contain the above machinery. Any one can do this with the capacity and cost of materials given. I would remark, however, that a building at the South, with the same cost of labor and material, could be erected much cheaper than one adapted to our Northern climate.

The return from cotton in *well* arranged mills is 85 per cent, although many return 75 per cent.

A loom in fair operation will produce 32 yards per day, running at 110 picks per minute, and making cloth 64 picks or threads of weft per inch.

The Matteawan Co. have sent machinery to the South for a large number of mills, and could probably furnish it as cheap and at as short notice as any machine makers in the country; although the best means for a Southern company to start a mill well, and in the shortest possible time, would be to engage a good practical manufacturer, and let him put the mill in operation and furnish a competent superintendent, for a specified sum. This plan has been adopted, and I believe with success. Respectable persons can be found to take charge of new factories, if the locations are agreeable. Respectfuly yours,

WM. MONTGOMERY.

Craigville, Orange Co. N. Y. June 8.

Influence of the Fine Arts.

Wherever the arts are cultivated with success, they almost imperceptibly educate the general taste, and make politeness of mind keep pace with refinement of manners. They are to a highly commercial and opulent state of society what chivalry was to the feudal system; they wear down its asperities, correct the selfishness of its action, enliven the dullness of its repose, and mitigate the fierceness of its enjoyments. Where the arts are well understood, fusion cannot be so monstrous or fantastic as where they exert no salutary dominion over the fond love of variety. The source of excellence in art being a judicious observation of nature, and a right perception of her principles of beauty and symmetry, a closer adherence to nature will mark the fashions of society polished by their ascendency than can distinguish the habits of people without the sphere of their influence. Hence the barbaric nations, where there is much wealth, never expend it in such a way as proves they have any notion of the pleasures of refinement. They endeavor to attract admiration through the vulgar passion of adornment, which is in a moment excited, and as suddenly expires, rather than create a rational respect by consulting for the praise of enlightend opinion.

Lead and Zinc Mines of Kentucky.

We understand that in the most valuable lead mine lately discovered in Crittenden Co. Kentucky, a large deposit of zinc ore accompanies the vein, and that 30 or 40 tons of the ore had been taken and thrown aside as entirely valueless, until the recent visit of a practical German chemist, who pronounced it far more valuable than the lead and equal in its quality and extent to the best zinc ore of Germany, where the zinc mines are sources of great wealth. We believe there are no zinc mines ever yet discovered in this country of sufficient value to pay for working. Cobalt and Cadmium blende have been found in the same vein. The latter is found in the zinc ore, and yields an unusually large per centage. It is one of the most rare and valuable metals.

Survey of the Copper Mines.

Dr. T. C. Jackson, of Boston has arrived in Washington, to make preparations for his tour westward. The Government has chosen him in conjunction with Dr. D. D. Owen, to make survey of all the regions of Lake Superior, and the waters of the Upper Mississippi, with reference more particularly to minerals. Dr. Jackson will survey the Lake Superior Land District, which includes the northern part of Michigan. This is a very important mission, and the reports when made and printed, will be of great service to the country. They will embrace a variety of departments in science.

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Arts, Manufactures and Machinery.

Increase and Diminution of Velocity.

The fatigue produced upon the muscles of the human frame does not altogether depend on the actual force exerted at each effort, but partly on the frequency with which it is exerted. The exertion necessary to accomplish every operation consists of two parts; one of these is the propulsion of the tool or instrument used; and the other is the motion of some limb of the animal producing the action. If we take as an example the act of driving a nail into a piece of wood, one of these is, the propelling the hammer head against the nail; the other is, raising the arm in order to lift the hammer. If the weight of the hammer is considerable, this latter part will cause the greatest portion of the exertion. If the hammer is light, the exertion of raising the arm will produce the greatest fatigue. It does therefore happen, that operations requiring very trifling force, if frequently repeated, will tire more effectually than much more laborious work. There is also a certain degree of rapidity beyond which the action of the muscles cannot possibly be pressed

It is of considerable importance for the economy of labor, to adjust the weight of that part of the animal's body which is moved, the weight of the tool it urges, and the frequency of repetition of these efforts, so as to produce the greatest effect. An instance of the saving of time by making the same motion of the arm execute two operations instead of one, occurs in the simple art of making the tags for boot-laces, they consist as is well known of very thin tinned plate iron, and used to be cut of long strips of that material into pieces of such a breadth that when bent round they just enclosed the lace. Two pieces of steel have recently been fixed to the side of the shears, by which each piece of tin as soon as it is cut is bent into a semi-cylindrical form. The additional power required for this operation is almost insensible, and it is executed by the same motion of the arm which produces the cut. This work is usually done by women and children, and with the improved tool more than three times the quantity is produced in a given time. Whenever the work is itself light, it becomes necessary to economise time, to increase the velocity. Twisting the fibres of wool by the fingers would be a most tedious operation; in the common spinning-wheel the velocity of the foot is moderate, but by a very simple contrivance that of the thread is most rapid A piece of cat gut or gutta percha passing round a large wheel, and then round a small spindle effects this change. This contrivance is common to a multitude of Machines, some of them very simple. In large shops for the retail of ribands it is necessary to take stock at short intervals, that is, to measure, and rewind every piece of riband, an operation which, even with this mode of shortening it, is sufficiently tiresome, but which without it would be almost impossible from its expense. The small balls of sewing cotton, so cheap, and so beautifully wound, are formed by a machine on the same principle, and but a few steps more complicated.

In turning from the smaller instruments in frequent use to the larger and more important Machines, the economy of increasing the velocity becomes more striking. In converting cast into wrought iron, a mass of metal of about a hundred weight is heated almost to a white heat, and placed under a heavy hammer moved by water or steam power. This is raised by a projection on a revolving axis; and if the hammer only derived its momentum from the space through which it fell, it would require a considerably greater time to give a blow. But as it is important that the softened mass of red-hot iron should receive as many blows as possible before it cools, the form of the cam or projection on the axis is such, that instead of lifting the hammer to a small height it throws it up with a jerk, and almost the instant after it strikes against a large beam, which acts as a powerful spring, and impels it down on the iron with great velocity by this means about double the number of strokes can be made in a given time. In the smaller tilt-hammers this is carried still further: by striking the tail of the tilt-hammer forcibly against a small steel anvil, it rebounds with such velocity that from three to five hundred strokes are made in a minute.

The most frequent reason for employing contrivances for diminishing velocity, arises from the necessity of overcoming great resistances with small power.

Systems of pullies, the crane, and many other illustrations present themselves, which more strictly belong to others of the causes which we have assigned for the advantages of Machinery.

The common smoke-jack is an instrument in which the velocity communicated is too great for the purpose required, and it is transmitted through wheels which reduce it to a more moderate rate.

On Brick Manufacture.

WASHINGTON, June 3, 1848.

Messrs. Editors :—I am prosecuting the manufacture of Brick, and find the chief obstacle in obtaining moulding sand or dust that will burn red. My clay burns a beautiful deep red, but the sand that I use will not burn red. All of the loam or sand that I can find is of a light (or dark as you may prefer) drab color that is fine and soft, slips well and gives the bricks a fine surface, but burns almost as white as lime. The only sand that I can find that will burn red is a coarse yellow sand on or near the banks of the river, but this makes the bricks have an ugly, sharp and somewhat rough surface, and does not slip so well in consequence of its coarseness.

I have been at a number of brick yards in this State, Virginia, Maryland, Pennsylvania, and your own State, and find in most of them that the sand used is very similar to that used by my workmen, yet theirs burn red while mine is of a white frosty color. The bricks are hard and durable but unsaleable in consequence of their unseemly appearance.

The object of this communication is to learn from you or some of the innumerable contributors to your valuable paper, the quality in sand or dust requisite to its burning red; and whether that quality (whether it be iron or other minerals) now absent in the dust that I am using may not be supplied. I have tried an experiment in a small way, of crushing slightly burnt salmon bricks to a dust, and find that the dust thus prepared slips well and burns a beautiful red color, but it is too expensive. Let me here ask if a kiln might not be constructed similar to a lime kiln, in which clay might be burnt partially, so as to destroy the sticking matter in it, (the clay being previously dug up and dried) and then by means of a roller be converted into dust without material cost.

I hope you will bring this matter to the attention of brickmakers, and invoke their aid and counsel in my behalf. It is not possible that in this little bye place I can be in the way of any one in this branch of industry. If I can gain no information that will enable me to procure such sand as will answer the desired purpose, I shall be compelled to abandon the business or abandon the present mode of manufacture, and resort to some other where the moulding is executed without sand or dust.

I have seen and examined the dry presses, where sand is not used, but they will not answer for my clay, and if they would, are entirely too expensive for this market, as I cannot dispose of more than six hundred thousand bricks per annum. If there is any machine now in use by which bricks can be made with tempered clay without sand, I would be glad of such information.

In speaking of sand or dust, in all cases I mean the sand used for dusting the moulds.

Yours, &c. H. J. B. C.

The brick manufacture is one of no small interest to thousands in this country. The above letter invites attention, and practical, plain and condensed information is solicited. There can be no doubt upon this part of the subject, that it must be an entire absence of iron in the dust mentioned above that causes it to burn white Iron is a coloring flux, and we would suggest the sulphate of iron (copperas) burnt in a crucible, pounded into fine dust and mixed with the sand. A very small portion would suffice and the expense could not be much.—ED.

For the Scientific American.

The English Patent Laws.

There are some features of the English Patent Laws that are admirable, and others that exhibit more barbarous legislation than would be expected in the Fejee Islands. It is an admirable feature in the English Patent Laws that any new application of any substance or mechanical contrivance can be patented and that without any trouble—nothing is left for exparte decision in this respect, and there is no trouble unless the application is contested. A very different process indeed from the manner in which our Patent Office business is conducted, where a dash of the pen, "you may appeal," completely checkmates a poor inventor, though his invention could have been proven to be entirely original, and useful. Talk about encouragement to poor inventors as we may, the writer of this believes that there is much mock philanthropy exercised on this subject and he knows something about it. A rich man can sustain his patent, a poor man has but a very small chance of doing so. Let any one read the history of patent litigation, and he will find my assertions not incorrect. But to my tale. I have mentioned one good feature in the English Patent Law, but if the account of any invention be published previous to applying for an English patent, the law decides against the applicant, and the British Attorney General declares that the invention has "become public property" This is the barbarous feature in the English Patent laws. How potent, grave and reverend gentlemen are pleased with such laws, is "more than can be dream't of in our philosophy." The only principle of reasoning to be adduced from it is, that houses and lands should also become public property after being heard of and seen.

A case of this kind was recently decided in England, and a knowledge of that fact induced me to pen these few remarks, knowing that they would meet the eyes of many of our inventors and scientific men through the columns of the Scientific American. If useful knowledge, science and art have been steadily advancing with rapid strides, there can be no doubt but laws, especially Patent Laws, are worthy of their age, six hundred years old and a little over, and the making, and deciding upon these laws is left to as sensible and worthy men, with nearly the same views, as those who condemned Galileo for his discoveries in science. R. B

New York, June 14, 1848.

Steam Boilers.

The following ingenious views in reference to steam boilers will be found to be original and interesting.

Some years since in using a water bath, open boiler and fire at the bottom, I pressed to the plane surface of the bottom a metallic plate —ebullition immediately commenced. I removed the plate and ebullition instantly ceased. The water in the boiler was considerably below a temperature of 212° F. Cause—the concentration of heat on the thin stratum of water between the metallic bottom and plate. By a practical application of the principle we can get up steam—suddenly—before the bulk of the water is heated. It may be said that "the steam thus generated would in a closed boiler as suddenly equalize itself to the temperature of the water." I think not. The large bubbles come through to the top of the water. To apply the principle—let the copper tube flue of a locomotive boiler have another tube fitted over it leaving a space all around between the two, say of the 1-20th of an inch or 1-16th ; when not supported the exterior tube will rest in cantact on the interior one. Heat the flue and steam will rapidly be generated in the space between the two —too rapidly—we must have 4 longitudinal slits for the ingress of water and egress of steam from the outer tube, leaving occasional rings to preserve the continuity of the tube. But perhaps the mud would be deposited on the flue and burn it—then elevate one edge of each of the four sections of the tube, making vanes of them, or introduce little cups or spiral vanes, which by the steam forcibly impinging against them will give a rotary motion to the outer tube and incrustations of mud, salt, &c. will be prevented. What might be the thermo magnetic electrical effect of such a rattle trap we will not now enquire. A common iron boiler flue could not have the "rotating mud-flier !" around it, but the "jacket" could be kept in violent agitation and be open at the bottom to let the mud fall down. F. S.

Vicksburg, Miss. June, 1848.

Collections of Specimens from Soundings.

The charts of the Coast Survey exhibit a perfect representation of the character and configuration of the bottom of the ocean, within a certain distance from land. The idea occurred to Lieut Bache, in 1842, to form a collection of all the different materials obtained in the sounding operations, and he accordingly commenced reducing this idea to practice by placing in small bottles, duly labelled, specimens of all the materials found at the bottom. It was the intention of this lamented officer to form a large geological map, by glueing on the surface of a suitable chart the several substances contained in the bottles, in their proper order, and thus at one view to present to the eye, the means of generalizing the geological phenomena of the submarine formation. The plan of a map of this kind has not yet been carried into practice, but the collection of the materials has been continued.

Besides the formation of the map above mentioned, the microscopic examination of these specimens could scarcely fail to develope some interesting facts, which might prove of value to navigation as well as of importance to science. Accordingly, specimens of the materials of soundings were submitted by the Superintendant to Prof. J. W. Baily of West Point, who kindly undertook the examination of them. He finds that all the deep sea soundings are of the highest interest being filled with organisms, particularly with those of the calcareous polythalamia, to an amount that is really amazing, hundreds of millions existing in every cubic inch. The specimen from latitude 38 04, longitude 73 56, from the depth of ninety fathoms, is crowded with remains, mostly large enough to be recognized by a practised eye without the aid of a magnifier. The forms which occur at different depths and in different places are so various that they might serve to identify the position of the mariner, and thus furnish another illustration of the fact, that branches of knowledge apparently the furthest removed from utility are frequently found applicable to the useful arts of life. In this connexion, it may be mentioned, that Professor Agassiz has accompanied Captain Davis in his hydrographical operations connected with the coast survey, and has reaped a rich harvest of discovery relative to the animals which inhabit different depths of water. Every few feet of increase in the depth give changes in the character of organized beings which inhabit the ocean.

Two Dispositions Contrasted.

A genial and happy disposition finds materials of enjoyment everywhere. In the city or the country—in society or solitude—in the centre of the forest—in the hum of the multitude, or in the silence of the mountains, are alike materials of reflection and elements of pleasure. It is one mode of pleasure to listen to the music of Don Glovani, in a theatre glittering with light, and crowded with elegance and beauty, it is another to glide at sunset over the bosom of a lonely lake, where no sounds disturb the silence but the motion of the boat through the water. A happy disposition derives pleasure from both, a discontented temper from neither, but is always busy detecting deficiency, and feeding dissatisfaction with comparisons. The one gathers all the flowers, the other all the nettles in his path.—The one has the faculty of enjoying everything, and the other of enjoying nothing. The one realizes all the pleasures of the present, good, the other converts all into pain, by pining after something better, which is only better because it is not present, and if it were present would not be enjoyed.

Ovid compares a broken fortune to a falling column ; the lower it sinks, the greater the weight it is obliged to sustain.

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TO CORRESPONDENTS.

"H. B. of N. Y."—Your drawing and model came all safe and the papers will be made out with all despatch.

"E. L, of Md."—Choose a steam engine, and one of twelve horse power. It will be cheapest in the end.

"J. T. S. of Va."—You will find plenty of mechanics in Boston to take charge of your machine shop.

"R. M. G. of N. Y."—We are sorry to think that you should leave the purely practical, for the vague and unsound. What power can you get above that of the steam, that is, the fountain. We are sorry to say, that many good mechanics have a notion that levers and cranks increase the power. Tis all folly, and we exhort you to steer clear of the rock upon which many have split.

"N. W. of Conn."—An invention to accomplish what you propose in the draw rollers, was patented last year, and the Examiner's Report describes it to be near the same. The distance between the draw rollers can be varied at pleasure and there are no less than 4 different parts of the invention, which appears to cover a wide field. An examination at the Patent Office would perhaps be the best mode of procedure for you.

"L. A. B. of N. Y."—Spiral pipes for the throwing of water upwards, have been long known, but a spiral tunnel, to our knowledge, has not been used.

"S. J. of Md."—There is no use in using the nitrate of iron in dyeing the blue.

"Erratta"—In answer to a "Subscriber," last week, "cylinder," should have read *cistern.*

"N. K. of N. Y."—It will require a force of two and six-sevenths pounds applied to the largest wheel to *balance* the weight of 10 lbs. as represented in your diagram. The amount of power necessary to *draw up* the 10 lbs. weight depends of course on the friction of your wheels. They might be so accurately fitted as to require but the addition of one-seventh, of three pounds, when the 10 lbs. weight would rise.

"G. W. H. of N. Y."—Your tailors measuring instrument will appear next week. Circumstances have prevented its appearing in this number.

"G. L. of La."—All that we have got to say about artificial cold will be found in this number.

"T. R. of Va."—The resistance arising from the friction of water flowing through pipes is directly as the velocity of the water and inversely as the circumference of the pipe.

"J. C. C. of Vt."—Cannons are proved by hydraulic pressure, which is calculated by the weight of a perpendicular column of water, the area being equal to the bore and the height equal to the given height.

"C. B. N. of New York"—You will not be allowed to use the Croton water to propel your wheel, it being against the rules of the Company to allow it to be used for such purposes. No person can tell the power, unless they know the quantity of water discharged in a given time (the velocity,) as well as the fall.

"W. B. S. of N. H."—It will not be possible to get a patent, as your principle is the same as others in use, of which there are a great variety.

"G. C. of N. H."—The rule you want is just the same as the rule for calculating the relative diameters and speed of pulleys. See Whitlaw's Treatise.

Pictorial National Library.

A new periodical bearing the above title, has made its appearance upon our table, and from a hasty perusal of it we should pronounce it both useful and entertaining. The number before us is for July, and it contains fine engravings and a good list of contents.—W. H. Simonds publisher, No. 12 School st. Boston. Price only $2 a year. We shall express our views in a more elaborate manner in some future number.

There fell during the last year, in the city of Savannah, Geo, not less than 59 inches of rain. As much as would nearly have covered the whole surface of the ground, five feet in depth.

Russ Pavement.

The Russ Pavement requires thorough inspection as it progresses, and much care. The last work is reported as having been greatly slighted, the cubes being loosely set together in sand, which will soon wash away and leave the upper surface any thing but perfectly true. Cement should be faithfully used to the last, in order to produce the pavement which is so much admired. We have seen some of the cubes taken up to be relaid a few days after it was thrown open for travel.

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The undersigned pledges himself most sacredly never, under any circumstance or pretence whatever, to divulge the secrets or business of any inventor to another inventor; nor will he ever show the drawings or specifications of one party to another party, or give any explanations without permission. His offices, or rooms, are especially adapted to this purpose, being so arranged that each section of the business is managed in a separate apartment, and so that no applicant can possibly get a glance of the drawings or specifications of others. Inventors, from sad experience, know the importance of such an arrangement.

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Author of the "Art of Weaving." "Practical Treatise on Dyeing and Calico Printing," "Pastoral Life and Manufactures of the Ancients," "Wonders of Nature and Art," &c.

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PATENTED.

THE advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

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It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

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JACK SCREWS,
Of various sizes, power and price, constantly on hand at the manufactory,
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m20 tf

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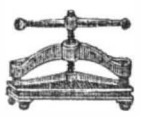

THE Subscriber continues to manufacture his Premium Letter Presses, at Worcester, Mass., and respectfully informs his friends and the trade generally, that he keeps constantly on hand a large assortment, which he offers for sale at reduced prices. Orders by mail will be promptly attended to
GEO. C. TAFT,
Worcester, Mass., April 11, 1848. a22 3m

Stave Dressing Machine.

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It will dress crooked and winding staves to perfection, and leave the full thickness on those with thin edge, a desideratum worthy of attention.

The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform fully equal to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to
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A. W. WHITNEY'S Patent Improved Tinner's Machines of every description, constantly on hand and for sale by JOHN M. BRUCE & SONS,
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THE subscriber is constantly building his improved Lathes of all sizes, from 7 to 30 feet long, and can execute orders at short notice.
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SCALE OF PRICES PER FOOT.

Inches.	Cents.	Inches.	Cents.	Inches.	Cnts
2 :	14	5 :	38	9 :	71
2 1-2	17	5 1-2	40	9 1-2	73
2 3-4	19	6 :	45	10	80
3 :	20	6 1-2	49	10 1-2	85
3 1-2	26	7 :	57	11 :	90
3 3-4	28	7 1-2	58	11 1-2	95
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From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

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THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.
Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

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To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

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I AM now prepared to offer my old and new customers—for Gentlemen and Youth—for Spring and Summer, at wholesale and retail, a very extensive assortment of Hats and Caps—at prices which cannot fail to suit the most economical and prudent purchaser. Store and Chambers—173 Washington street, Boston. W. M. SHUTE. m20 7t*

Important to the Public.

IT must not only be important, but interesting to the public to know at what establishment in New York Hats or Caps of the best quality and latest style can be purchased at the cheapest price The place is Knox's, where may be found every variety of a Hat from a shilling Palm Leaf to a Five Dollar Beaver, or a Cap from a two shilling oil cloth to a beautiful new style cloth for $1.50.

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j3 tf L. T. TALBOT, Taunton, Mass.

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Artificial Cold.

(*Concluded from our last.*)

Where saline substances are cheap, the more powerful mode of refrigeration has been the use of the frigorific mixtures. Some of these mixtures are capable of producing the most intense cold known to philosophy. Dissolving salt petre in water creates a very useful degree of cold; and where the salt is plentiful, as in India, it has long been employed, for this purpose. It was the peculiar duty of one domestic to cool beverages for the table by this means, who received the impregnated solution for his perquisite.—Where, however, snow or ice is procurable the intensity of the freezing mixture rises to its higher points. Snow and salt produce a mixture which was deemed by Fahreheit to be of the greatest possible degree of cold. This was the temperature of his zero. Our confectioners are in the habit of using for their craft, pounded ice and salt. The substance known as chloride of calcium, mixed with snow, produces a most severe cold, sufficiently great to freeze mercury. Mr. Walker, to whose interesting experiments upon this subject, we stand much indebted, was on one occasion able, by successive coolings, to attain a depth of cold equal to 91 degrees below Fahrenheit's unhappy zero. In the laboratory of the chemist, great degrees of cold are procurable by the use of highly volatile liquids for evaporation. Every juvenile chemist's ears have tinged with the startling enunciation of the possibility of freezing a man to death in the height of summer, by wetting him constantly with ether—which is, however, a fact undemonstrated. The sulphuret carbon; and, more recently, liquid sulphuous acid, both of them exceedingly volatile fluids, create intense cold by their evaporation. The almost magical experiments of M. Boutigny, in which water was frozen in a red-hot crucible, were effected by the assistance of sulphurous acid in the liquid form. The remarkable substance, liquid carbonate acid, takes the highest rank as a refrigorific agent known. Mr. Addams of Kensington, actually manufactures this curious liquid as an article of commerce, and has occasionally as much as nine gallons of it in store. In drawing it from its powerful reservoirs, it evaporates so rapidly, as to freeze itself, and it is then a light porous mass, like snow. If a small quantity of this is drenched with ether, the degree of cold produced is even more intolerable to the touch than boiling water; a drop or two of the mixture producing blisters, just as if the skin had been burned. Mr. Addams states, that, in eight minutes he has frozen in this way a mass of mercury weighing ten pounds.

There have been some mechanical contrivances for the manufacture of ice. Evaporation may be accelerated mechanically to a degree so great as to produce ice in considerable quantities, and this is the principle of Sir John Leslie's celebrated freezing apparatus. In conducting some experiments on the rarefaction of air, he was led to conceive the idea of manufacturing ice on a large scale from a little phenomena observed in the receiver of his air pump. Introducing a watch-glass full of water, and in contact with sulphuric acid, into the receiver of his air-pump, and on making a few strokes with the piston, the water was converted into a mass of solid! With a body of parched oatmeal, instead of the acid as the absorbent of moisture, he froze a pound and a quarter into ice. Experiments on the large scale followed, powerful machines were constructed, and various improvements were adopted in the apparatus, all tending to facilitate its application to the wants or luxuries of mankind. Several of these machines have been exported into hot climate. Dr. Ure suggested steam as the vacuizing power, and the idea has been conceived, that wherever a steam engine is employed. there an ice apparatus might be erected and sustained at a trifling cost, with great prospect of productiveness.

The most recent ice-machine, is "Master's Apparatus," the principle feature of which is, that a metallic cylinder is made to undergo rapid rotation in a freezing mixture, the motion appearing in a singular manner to expedite and facilitate the process.

Some account of the applications of artificial cold may, perhaps suitably conclude our paper. For some time the ingenuity of men in this particular developed itself no further than in simply cooling wine and other beverages, but a more refined and even elegant mode of doing so, was afterwards discovered. In Boyles "History of Cold," it is stated that he was accustomed to make wine-cups of ice, by means of tin moulds, for use in hot weather, pleasant trifles, as he calls them, which imparted a delicious coolness to the wine poured into them. In an old romance, named the "Argenis," a dinner in summer is described, at which fresh apples half-incrusted with ice, and a basin of ice filled with wine, were among the curiosities upon the table. Then came the invention of water-ices, by one Procope, an Italian, who had an immense sale for them at Paris. Cream ices, and the iced juice of fruits, were then made, and found a rapid consumption. More recently, the art of the confectioner has applied this process to imitate many kinds of fruit and peaches—apricots and nectarines of ice—copying the originals with very curious fidelity.

For the Scientific American.

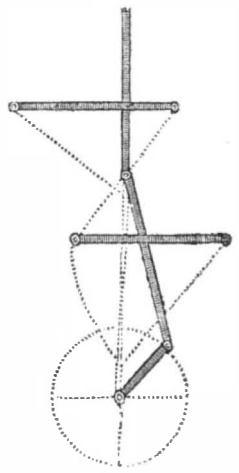
Art of Dyeing.—Drab Color.

This is a color that looks well on coarse goods, or rather makes coarse goods look well, and for country millers, or farmers that have no work among burnt and black logs, we cannot too strongly urge the propriety of having their home made clothes for many purposes, such as vest and pants, of this color. A drab color is just a light brown, but for a beautiful and fast color a very different stuff is selected to dye the drab, from those stuffs employed to dye brown. Crop madder, which is to be found at all the druggists, is the principal stuff. For any quantity of cloth or yarn that the dye kettle may conveniently hold, a small quantity of the ground madder is scalded with boiling water in a clean vessel and set aside to settle. A small dipper full of this along with a little (very little) fustic liquor, and sumac liquor, is put into the dye kettle and when at full boil, the goods are entered loosely (if cloth,) and well handled, (if yarn,) well turned and quickly. In about twenty minutes the goods are taken out, and some more of the dye stuff liquors added, and the same process repeated. This is done until what is called a "full body," is acquired by the goods, when they are taken out and a small quantity of the sulphate of iron added to the boiler, when the top of the boiler is skimmed of its dirty froth, and the goods entered and darkened, or saddened, as it is technically termed, then taken out and washed. If the drab is wanted on the yellow shade, the greater is the quantity of fustic used; if on the salmon, the greater the quantity of madder, and the sumac and iron according to their quantities so are the drabs made dark. Madder alone upon a white ground makes a clear salmon color and it will wash most beautifully, in fact soap seems to have a wonderful effect in beautifying all madder colors. For carpet yarn, a small quantity of fustic and camwood makes a very good drab and also salmons. A little sulphuric acid is used in the boiler to redden or *raise* the color. We do not expatiate on the philosophy or theory of dyeing, although we might, but we give the results of practice, a part in which few of the theorists dare indulge without some risk of scientific reputation. In some parts of our country, we know that there is very fine wool raised and made into large twilled heavy shawls by our farmers' daughters. We have seen some of them a good white and they looked well, others we have seen that were attempted to be dyed with the luck of the leopard's skin. To those who would dye their own woolen goods we say, be very careful to boil and handle well and do not have too great strength of stuffs in the boiler, rather have the liquor *weak* and take longer time to dye, by often taking out the goods and adding a little at a time of the dye liquors.

Madder colors have sadly gone out of fashion much to the injury of permanent colors, both on cotton and woolen goods. As there are various tracts of land and a suitable climate to raise this dye stuff in the United States, it is to be hoped that it will become both a cheaper and a greater favorite of a dye drug. This we hope will be the case for many reasons, two of which are, that it dyes fast colors and with various mordaunts, an endless number of shades from the red to the drab, and the deep purple.

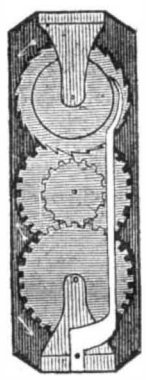
MECHANICAL MOVEMENTS.

Rectilinear Motion and Circular.



This cut exhibits a modification of the method by which circular motion is produced from the rectilinear motion of the old piston rod. This is done by the manner of connecting the rod with the beam and is the ingenious solution of a mechanical problem first applied by Watt. He first conceived the notion of two straight rods moving on pivots connected with a third rod which could turn freely and connecting the other end of the beam with a crank shaft nearly as represented in the above cut. It is needless to say how successful he was—that is now well known—and the improvements made since his day for the same purpose, may be well judged of by comparing the above with our present plans. The dotted lines describe the arcs, circular movements and motions of the crank and rods.

Regulator.



This is a contrivance for regulating the velocity of machinery, proposed by Mr. Brequet, an ingenious Frenchman. The lower wheel being driven in the direction of the arrow carries those above in succession, but the axis of the centre wheel is supported in an elastic piece which is fixed at its lower extremity and acts as a brake on the top wheel whenever the speed or force of the lowest carries the axis of the centre wheel out of a straight line through the three centres.

The Illuminated Vacuum.

Take a tall receiver that is very dry, and fix through the top of it, with cement, a blunt wire; then exhaust the receiver and present the knob of the wire to the conductor, and every spark will pass through the vacuum in a broad stream of light, visible through the whole length of the receiver, let it be as tall as it will. This generally divides into a variety of beautiful rivulets, which are continually changing their course, uniting and dividing again in the most pleasing manner.

If a jar be discharged through this vacuum, it presents the appearance of a very dense body of fire, darting directly through the centre of the vacuum without touching the sides; whereas, when a single spark passes through, it generally goes more or less to the side, and a finger placed on the outside of the glass will draw it wherever a person pleases. If the vessel be grasped by both hands, every spark is felt like the pulsation of a large artery; and all the fire makes towards the hands. This pulsation is even felt at some distance from the receiver, and a light is seen between the hand and the glass.

All this while the pointed wire is supposed to be electrified positively; if it be electrified negatively, the appearance is astonishingly different; instead of fire nothing is seen but one luminous appearance, like a white cloud, or the "milky way" in a clear star-light night. It seldom reaches the whole length of the vessel, but generally appears only at one end of the wire, like a lucid ball.

If a small phial be inserted in the neck of a small receiver, so that the external surface of the glass be exposed to the vacuum, it will produce a very beautiful appearance. The phial must be coated on the outside; and while it is charging, at every spark taken from the conductor into the inside, a flash of light is seen to dart at the same time from every part of the external surface of the phial so as to quite fill the receiver. Upon making the discharge, the light is seen to run in a much closer body, the whole coming out at once.

Glass and Milk.

Glass is very advantageous for milk pans, because it is a non-conductor of electricity. It is well known that the effects of electricity upon milk in tin pans during thunder storms turn it to acid. Milk sealed up in glass bottles will keep for a long time. This is done by filling the bottles with warm milk, turning them upside down in the milk basin and then sealing quickly, so as to allow no air to be in the bottle.

Galvanic Battery.

Alternate plates of zinc and cast iron have been discovered, by Dr. Allam of Maynooth, to constitute a cheap and effective battery, A full grown turkey was killed in half a second, on being touched with the wires, discs of iron, thick pieces of copper, and pieces of the hardest-tempered steel were ignited with the greatest ease.

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